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RESEARCH ARTICLE

Assessment of Decisional Conflict about the Treatment of Carpal Tunnel Syndrome, Comparing Patients and Physicians

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Abstract

Background: As part of the process of developing a decision aid for carpal tunnel syndrome (CTS) according to the Ottawa Decision Support Framework, we were interested in the level of 'decisional conflict' of hand surgeons and patients with CTS. This study addresses the null hypothesis that there is no difference between surgeon and patient decisional conflict with respect to test and treatment options for CTS. Secondary analyses assess the impact of patient and physician demographics and the strength of the patient-physician relationship on decisional conflict.

Methods: One-hundred-twenty-three observers of the Science of Variation Group (SOVG) and 84 patients with carpal tunnel syndrome completed a survey regarding the Decisional Conflict Scale. Patients also filled out the Pain Self-efficacy Questionnaire (PSEQ) and the Patient Doctor Relationship Questionnaire (PDRQ-9).

Results: On average, patients had significantly greater decision conflict and scored higher on most subscales of the decisional conflict scale than hand surgeons.Factors associated with greater decision conflict were specific hand surgeon, less self-efficacy (confidence that one can achieve one's goals in spite of pain), and higher PDRQ (relationship between patient and doctor). Surgeons from Europe have--on average--significantly more decision conflict than surgeons in the United States of America.

Conclusions: Patients with CTS have more decision conflict than hand surgeons. Decision aids might help narrow this gap in decisional conflict.

Keyword: Carpal Tunnel Syndrome, Decision aids, Hand surgery, Shared decision makin

Introduction

In shared decision-making, health care professionals provide diagnosis, prognosis, and treatment options and the patient expresses his or her preferences and values (1). Decisional conflict--defined as a state of uncertainty about the course of action to be taken—can occur either when there is debate regarding optimal management or when the patient has poorly defined or biased preferences (2-4). Decision aids help clarify areas of debate and help patients determine their preferences when there is more than one option.

Potential sources of decision conflict in the management of carpal tunnel syndrome (CTS) include the role of electrodiagnostic testing; the role of corticosteroid injection; the role of surgery for immeasurable nerve pathology; and the role of surgery for severe CTS with static numbness and atrophy. As part of the process of developing a decision aid for CTS according to the Ottawa Decision Support Framework, we were interested in the level of 'decisional conflict' of patients with CTS and among hand surgeons.

This study addresses the null hypothesis that there is no difference between surgeon and patient decision conflict with respect to test and treatment options for CTS. Secondary analyses assess the impact of patient and physician demographics and the strength of the patient-physician relationship on decision conflict.

Material and Methods

Using an IRB approved protocol; we surveyed observers of the Science of Variation Group (SOVG) and all new English speaking, 18 years or older and not

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pregnant patients with carpal tunnel syndrome visiting the orthopaedic hand and upper extremity outpatient offices between May 2012 and April 2013. The research assistant described the study in detail and informed consent was obtained.

All hand surgeons participating in the Science of Variation Group (SOVG) were asked to complete the survey and 123 surgeons completed it [Table 1]. Incentives, other than acknowledgement as part of the SOVG were not provided. Ninety-one patients were enrolled, but 1 patient was excluded due to computer illiteracy and 6 patients declined participation. The mean age of the 84 patients that completed the study was 55 years (SD= 16, range 20- 90 years) and 29 patients (35%) were men [Table 2].

After logging into the website, each observer entered their demographic and professional information: 1) sex, 2) country or region of practice, 3) years in independent practice, 4) supervision of trainees and 5) surgical subspecialty and completed the Decisional Conflict Scale. After the medical encounter with the hand specialist, patients completed the Decisional Conflict Scale, the Pain Self-Efficacy Questionnaire (PSEQ), and the Patient Doctor Relationship Questionnaire – 9 (PDRQ-9) (5, 6).

Measurement tools

The Decisional Conflict Scale (DCS) is a reliable and valid measure of personal perceptions of: a) uncertainty in the face of options, b) modifiable factors contributing to uncertainty such as feeling uninformed, unclear about personal values, or unsupported in decision making; and c) effective decision making such as feeling the choice is informed, values-based, likely to be implemented, and expressing satisfaction with the choice (2). It consists of 16 questions, with a total score ranging from 0 (no decision conflict) to 100 (highest level of decision conflict) (2).

The Pain Self Efficacy Questionnaire (PSEQ) is a 10-item patient-reported outcome inventory. The PSEQ assesses a patient's confidence in their ability to reach their goals in spite of pain (7, 8). The questions are scored on a 7-point Likert scale ranging from 0 ("not at all confident") to 6 ("completely confident"). The outcome score is calculated by adding up the items on a scale ranging from 0 to 70, with a higher score indicating greater self-efficacy. We used mean imputation for three missing values on the PSEQ score (8).

The Patient Doctor Relationship Questionnaire – 9 (PDRQ-9) is a validated 9-item questionnaire used to assess the patient's perception of their physician as effective and helpful (6).

Table 1. Demographic informationt of the observers

Parameters	**n**	**(%)**
Sex		
Man	92	89.3
Woman	11	10.7
Location of practice		
Asia	2	1.9
Canada	1	1.0
Europe	6	5.8
United Kingdom	2	1.9
United States of America	84	81.6
Other	8	7.8
Years In practice		
0-5	34	33.0
6-10	23	22.3
11-20	26	25.2
21-30	20	19.4
Supervise		
Yes	77	74.8
No	26	25.2
Specialization		
Hand surgeons	102	99.0
Other	1	1.0

Table 2. Demographic information of the patients (n= 84)

Parameter	Mean	SD	Range
Age (y)	55	16	20 - 90
Education (y of School, n=84)	15	2.9	1-22
	Number	%	
Sex			
Man	29	35	
Woman	55	65	
Marital status			
Single	14	17	
Living with partner	3	3.6	
Married	50	60	
Separated/Divorced	11	13	
Widowed	6	7.2	
Work status (n=81)			
Working full time	40	49	
Working part time	8	9.9	
Homemaker	3	3.7	
Retired	16	20	
Unemployed, able to work	4	4.9	
Unemployed, unable to work	10	12	
Physician			
Surgeon 01	10	12	
Surgeon 02	21	25	
Surgeon 03	53	63	

Statistical analysis

An a priori power analysis for our primary study question determined that 84 patients in the physician cohort and 84 patients in the patients cohort would provide 80% power to detect a 0.30 standard deviation (minimal) difference in average DCS score, with alpha level 0.05 (probability of a type I error), using a two-tailed Student T-test.

Continuous data were presented as the mean when normally distributed. We used an ANOVA to test for differences in continuous response variables by categorical explanatory variables. In bivariate analysis Pearson's correlation was used for continuous variables, Student T-test for dichotomous variables and one-way ANOVA for categorical variables. Variables with $P<0.10$, were inserted in a backward, stepwise, multivariable linear regression analysis to find predictors of the DCS score. When categorical variables were inserted in multivariable analysis dummy codes were generated when there were more than two categories.

Results

On average, patients had significantly greater decision conflict than hand surgeons on the total score of decisional conflict scale (19 vs. 6.5; $P< 0.001$). On average, patients had significantly more decisional conflict than hand surgeons on most subscales [Table 3]. In bivariable analysis factors associated with greater decisional conflict were specific hand surgeon, lower PSEQ (r=-0.29, $P<0.01$), and higher PDRQ (r=0.36, $P<0.01$) [Table 4].

Table 3. Comparison of Decisional Conflict Scale between patients and physicians

Parameter	Patients		Physicians		
	Mean	(±SD)	Mean	(±SD)	*P*-value
Decisional conflict scale (total)					
Total score	19	22	6.5	12	<0.001
Subscale					
Uncertainty	20	27	8.5	14	<0.007
Informed	23	31	6.7	1.5	<0.001
Values clarity	11	21	7.2	13	0.63
Support	28	35	5.5	15	<0.001
Effective decision	15	22.0	4.9	11	<0.001
PSEQ	45	12			
PDRQ	4.20	0.87			

Uncertainty: Score range from 0 (feels extremely certain about best choice) to 100 (feels extremely uncertain about best choice).
Informed: Scores range from 0 (feels extremely certain about best choice) to 100 (feels extremely uncertain about best choice)
Values clarity: Scores range 0 (feels extremely clear about personal values for benefits & risks/side effect to 100 (feels extremely unclear about personal values)
Support: Scores ragne from 0 (feels extremely supported in decision making) to 100 (feels extremely unsupported in decision making)
Effective: Score range from 0 (good decision) to 100 (bad decision)

Table 4. Bivariable analysis, comparing Decisional Conflict Scale

Parameter	Patients		
Sex	Mean	(±SD)	
Man	17	18	0.68
Woman	21	25	
Marital status			
Single	20	22	
Living with partner	31	28	0.28
Married	17	22	
Separated/Divorced	17	20	
Widowed	36	24	
Work status (n=81)			
Working full time	16	20	
Working part time	12	11	
Homemaker	20	34	0.24
Retired	26	25	
Unemployed, able to work	13	19	
Unemployed, unable to work	32	30	
Physician			
Surgeon 01	19	22	0.00
Surgeon 02	32	18	
Surgeon 03	15	22	
Health outcomes	Correlation		*P*-value
Age (y)	0.14		0.22
Education (y of School, n=84)	-0.13		0.25
PSEQ	-0.29		<0.01
PDRQ-9	-0.36		<0.01
	Physicians		
	Mean	(±SD)	*P*-value
Sex			
Man	6.7	12	0.90
Woman	4.4	6.9	
Location of practice			
Asia	16	11	
Canada	0.0	0.0	
Europe	26	27	0.01
United Kingdom	5.5	7.7	
United States of America	4.8	9.7	
Other	8.8	7.0	
Years In practice			
0-5	6.6	12	
6-10	7.6	16	0.95
11-20	4.5	6.0	
21-30	7.4	13	
Supervise			
Yes	6.8	13	0.44
No	5.3	9.0	
Specialization			
General orthopaedics	6.3	12	0.16
Other	20.3	N/A	

Table 5. Multivariable analyse predicting Decisional Conflict Scale

	Coefficient	Std. Err	*P*	Adj R-squared	95% CI	
pseq	-0.54	0.17	0.005	0.17	-0.91	-0.17
Doctor-2	15	5.16	0.004		6.7	27

*In model PSEQ, PDRQ, Doctor-1, Doctor-2, Doctor-3

The best multivariable model of factors associated with a higher DCS score included lower PSEQ and Doctor-2 and explained 32% of the variance in the DCS [Table 5].

In bivariable analyses of surgeon, the only significant finding was that surgeons in Europe have—on average--significantly more decisional conflict than surgeons in the United States of America (26 vs. 5.5; $P<0.01$) [Table 4]. There were no significant differences between factors cited by both, patients and surgeons as making their decisions difficult [Table 6].

Discussion

Patients with CTS have more decisional conflict than hand surgeons. The finding that coping strategies (low self-efficacy) and specific surgeon are related to decision conflict suggests that improvements in patient coping strategies and surgeon communication style or information delivery might help reduce decisional conflict. A decision aid could help with both by addressing surgeon and patient biases, empowering patients with information about their options, and by helping patients understand their values and preferences. A systematic review of 86 studies demonstrated that patients managed with decision aids were more actively involved in the decision making process and had lower decisional conflict (9).

This study should be considered in light of its shortcomings. Only half of the patients indicated factors that contributed to decisional conflict. The surveyed physicians are not directly related to the enrolled patients. We have no data regarding the specific surgeon communication style.

The decisional conflict found in this study is lower than reported in prior studies, perhaps because those studies dealt with life-threatening conditions (such as breast cancer and cystic fibrosis) and involved more treatment options (10-13).

Our finding that time constraints and inadequate instructional material were important contributors to decisional conflict are consistent with prior studies(9), emphasize the limitations of a single office visit, and support the potential value of support tools such as decision aids (14). Decision aids have been found to improve satisfaction with care and physical function and decrease anxiety and use of health care resources. (9) In one orthopedic surgery study, decision aids were associated with 26% fewer hip replacements, 38% fewer knee replacements, and 12-21% lower costs over six months (14-16).

The correlation between self-efficacy and decisional conflict emphasizes the central role of effective coping strategies in human health. Self-efficacy (or it's counterpart catastrophic thinking) is often the factor most responsible for the level of symptoms and disability for a given pathophysiology, and it also correlates with patient activation and preferences for shared decision making (17). These findings reinforce the rationale that coaching and training patients in effective coping strategies (self-efficacy) and reducing feelings of helplessness, can reduce decisional conflict (17, 18).

Table 6. What factors made deciding about the treatment difficult, comparing patients and physicians

	Patiënt (n=33)	Physician (n=80)	*P*-value*
Factors making deciding about the treatment difficult	n	n	
Not enough time	4	11	
Lack of information about options, benefits, risks	5	3	
Lack of information on the incidence/chance of each benefit and side effect	8	10	
Lack of tools to support the explanation of diagnosis and treatment	1	10	
Overwhelmed from information overload	3	7	0.08
Unclear about what is important	6	8	
Feeling unsupported in the decision-making process	0	3	
Feeling pressure from others	0	9	
Lack of motivation or not feeling ready to make a final decision	4	13	
Lack of the ability or skill to make a final decision	2	6	

P-value: describing the difference between patients and physicians regarding factors making deciding about the treatment difficult

Future studies should address the ability of decision aids to reduce decision conflict in hand surgery. It would also be interesting to determine if reducing decision conflict reduces symptom intensity, magnitude of disability, and resource utilization.

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